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# OPERATING INSTRUCTIONS
# FOOT-OPERATED
# AIR POWER HYDRAULIC PUMP
# SPA-6

English：E1~E4

## 1. SAFETY PRECAUTIONS

Fail to comply with the following cautions and warnings could cause equipment damage and personal injury.

**IMPORTANT :**Minimum age of the operator must be 18 years The operator must have read and understood all instructions, safety issues, cautions and warnings before starting to operate the SUN RUN equipment. The operator is responsible for this activity towards other persons.

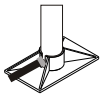
**WARNING :** To avoid personal injury and possible equipment damage, make sure all hydraulic components withstand the maximum pressure of 700 bar(10,000psi).

**WARNING:** Always wear safety glasses. The operator must take precaution against injury due to failure the tool or workpiece.

**DANGER:** To avoid personal injury keep hands and feet away from cylinder and workpiece during operation.

**WARNING :** Do not overload equipment. Overloading cause equipment failure and possible personal injury. The cylinders are designed for a max. Pressure of 700 bar (10,000psi).

**WARNING:** Never pressurize uncoupled couplers. Only use hydraulic equipment in a coupled system.



**WARNING: BE SURE SETUP IS STABLE BEFORE LIFTING LOAD.** Cylinders should be placed on a flat surface that can support the load. Where applicable, use a cylinder base for added stability. Do not weld or otherwise modify the cylinder to attach a base or other support.

**CAUTION:** Avoid sharp bends and kinks that will cause severe back-up pressure in hoses. Bends and kinks lead to premature hose failure.

**DO NOT** drop heavy objects on hose. A sharp impact may cause internal damage to hose wire strands. Applying pressure to a damaged hose may cause it to rupture.

**IMPORTANT:** Do not lift hydraulic equipment by the hoses or couplers. Use the carrying handle or other means of safe transport.

**CAUTION :** KEEP HYDRAULIC EQUIPMENT AWAY FROM FLAMES AND HEAT. Excessive heat will soften packings and seals, resulting in fluid leaks. Heat also weakens hose materials and packings. For optimum performance do not expose equipment to temperatures of 65$^0$C(150$^0$F) or higher. Protect hoses and cylinders from weld spatter.

**DANGER:** Do not handle pressurized hoses. Escaping oil under pressure can penetrate the skin causing serious injury. If oil is injected under the skin, see a doctor immediately.

**WARNING:** Immediately replace worn or damaged parts with genuine SUN RUN parts. SUN RUN parts are designed to fit properly and withstand rated loads.

**IMPORTANT:** Hydraulic equipment must only be serviced by a qualified hydraulic technician. For repair service, contact the SUN RUN Service Center in your area. To protect your warranty, use only SUN RUN oil.

## 2. DESCRIPTION

These air -power hydraulic pumps are designed for use with single-acting cylinders and tools. The pump treadle may be operated by hand or foot for greater versatility. Simplifies hydraulic connection and pump operation.
(As fig.1)

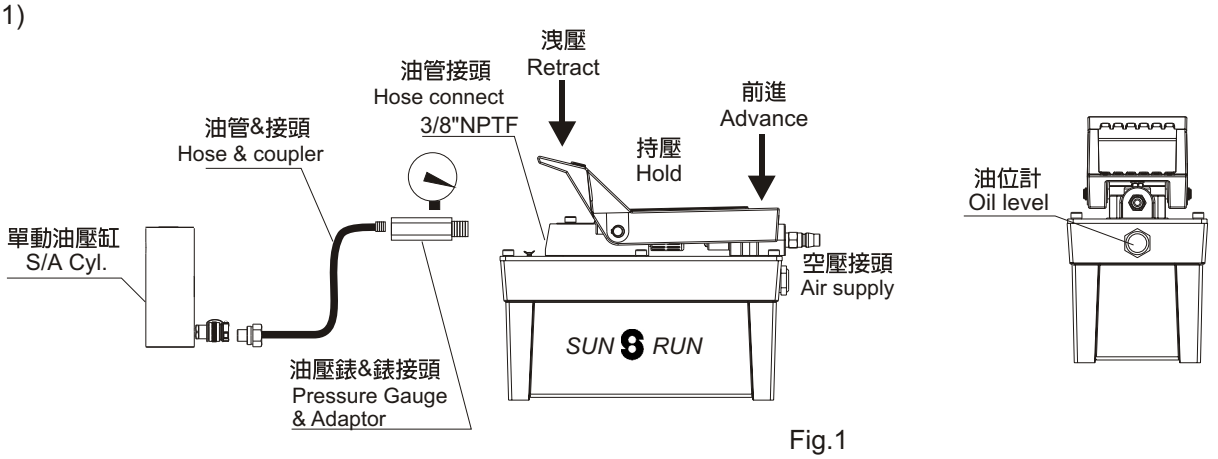



Fig.1

| Model Number<br>型 號 | Usable Oil Capacity<br>儲油量<br>(L) | Pressure Rating<br>輸出壓力<br>(bar) | <br><br>(psi) | Air Pressure Range<br>使用空壓<br>(kgf/cm²) | Output Flow Rate (noload)<br>輸出油量 (L/min)<br>0 bar | <br>700bar | 外型尺寸 Dimensions(mm)<br>A | <br>B | <br>C | <br>D | <br>E | <br>F | <br>G | W.t (Oil)<br>重量 (含油)<br>(kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SPA-6** | 2 | 700 | 10,000 | 6-10 | 1.24 | 0.16 | 225 | 171 | 131 | 260 | 128 | 228 | 102 | 8.2 |

## Priming the pump unit

1.Press the retract end of the pedal while holding down the air intake valve with hex. Wrench. The air intake valve is located directly under the pedal.
2.Allow the pump to cycle approximately 15 seconds.
3.Remove the wrench, and press the advance end of pedal once more.
4.If the cylinder extends or pressure builds, the pump has been successfully primed. If the pump does not respond, repeat the procedure, jogging the air intake valve while holding the pedal in the retract position.

Fig.2

## 3. OPERATION

3.1To extend the cylinder, depress the pedal on the end "Advance".
3.2To hold the cylinder in position, release the end of pedal "Advance" to let pedal for level situation.(see fig. 3)
3.3To retract the cylinder, press the pedal on the end "Retract".

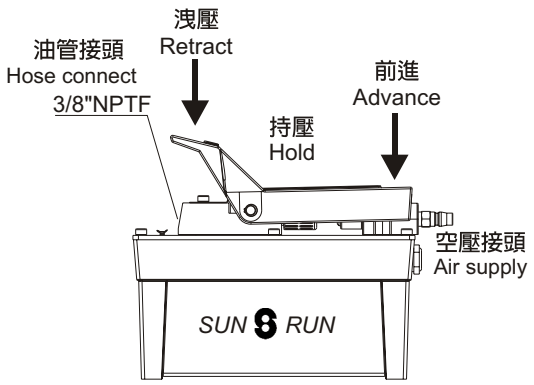


Fig.3

**3.4 For Pump with Air Regulator:**

1) Open the air shut-off valve or connect the air quick coupler.
NOTE: under certain circumstances the pump may need to be primed before operation. Refer to the method described in the section entitled
**"Priming the pump unit / Remove air"**
2) Slowly turn the air regulator control on unit clockwise to increase pressure, counterclockwise to decrease pressure. As air is admitted to the pump unit, it will begin to deliver fluid to the system. Continue to slowly turn the air regulator control clockwise unit gauge reads the maximum hydraulic pressure rating as stated on the pumps data plate. A maximum hydraulic pressure reading should be obtained if air pressure is approximately 10 bar (145psi)
3) Shut off and disconnect air supply to the pump to release all system pressure. Check fluid level with hydraulic system retracted. The pump is now ready for operation.

## 4. MAINTENANCE

4.1 If the pump is operated on a continuous duty cycle for extended periods, the manufacturer recommends installing an automatic air line oiler in the air inlet line as close to the pumping unit as possible. Set the unit to feed approximately one drop of oil per minute into the system. Use SAE grade oil , 5W 30W.
4.2 Check the fluid level in the reservoir after every 10 hours of use. Drain and replenish the reservoir with SUN RUN hydraulic oil after every 300 hours of use approximately.
4.3 The oil level should be 0.5 inch (12.7mm) from the oil/ vent cap with all cylinder retracted.
4.4 During the first moments of operation or after prolonged use, a significant amount of air may accumulate within the hydraulic system. This entrapped air may cause the cylinder to respond slowly or behave in an unstable manner. To remove the air, run the system through several cycles (extending and retracting the cylinder) free of any load. The cylinder must be at lower level than the pump to allow air to be released through the pump reservoir.

## 5. TROUBLESHOOTING

The following information is intended as an aid in determining if a problem exists. DO NOT disassemble the pump. For repair service, contact the Authorized SUN RUN Service Center in your area.

| Problem | PossibleCause | Solution |
|---|---|---|
| Pump reciprocates but no fluid delivery (cylinder will not extend) | 1.Low fluid level.<br>2.Pump not primed.<br>3.Fluid intake filter contaminated. | 1.Add fluid as instructed in MAINTENANCE section.<br>2.Prime pump as instructed in.<br>3.Remove reservoir and clean intake filter and reinstall. |
| Low fluid delivery (cylinder extends slowly) | 1.Inadequate air supply<br>A) Check air input supply.<br>B) Contamination, check air side of pump (plugged air inlet screen).<br>2.Hydraulic failure<br>A) Check the fluid inlet filter for contamination.<br>B) Air in hydraulic system. | 1.<br>A) Should be 20CFM (0.57$M^3$/min.) Minimum.<br>B) Clean and reassemble.<br>2.<br>A) Remove reservoir and clean intake filter and reinstall.<br>B) Bleed the system as described in the Maintenance section. |
| Pump will not build to maximum pressure(no visible leakage) | 1.Check the air supply.<br>2.Pressure regulator improperly adjusted(if so equipped) | 1. 10bar(145psi) is required to obtain maximum pressure.<br>2.Adjust according to instructions in Operation section. |
| Pump builds pressure but will not hold system pressure | 1.Check the hydraulic connections and other system components for leakage, including 3 way/4 way valve(if so equipped) | 1. Refit or repair as needed. |
| Pump will continue to run slowly even after desired pressure is reached | 1.Output pressure equal to or higher than relief valve setting.<br>2.Defective 3 way/ 4way valve or other components leaking. | 1. Normal operation.<br>2. Repair or replace. |
| Excess oil spray from muffler | 1.Air lubricator is set too rich. | 1. Set at one drop per minute. |